The effect of Rabbit

(*Oryctolagus cuniculus cuniculus*)

(Linnaeus, 1758)

Browsing on Seedling Survival.

A thesis presented in part fulfillment of the requirements

of the degree of

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"From the extraordinary manner in which European productions have recently spread over New Zealand, and have seized on places which must have previously occupied, we may believe, if all the animals and plants from Great Britain were set free in New Zealand, that in the course of time a multitude of British forms would become thoroughly naturalized there and would exterminate many of the natives."

Darwin, Charles. The Origin of the Species. 1859.

ABSTRACT

The European rabbit, *Oryctolagus cuniculus* (Linnaeus 1758) is a small 2–4 kg eutherian mammal introduced into New Zealand from the United Kingdom in the mid 1800's. By the 1950's the range of the rabbit had covered nearly 95% of the available land resulting in millions of dollars of damage. It was noticed by the 1970's that some populations were stable without any control measures being applied, and with increasing research and a changing attitude towards pest management away from extermination to control, it became policy that the status of this pest was downgraded to a regional pest rather than a pest of national importance. Control became the responsibly of the landowner rather than a national body except where populations occurred in high densities.

However, even rabbit numbers at low densities do exert a pressure on vegetation, and in some bush remnants rabbits are blamed for the lack of regeneration that occurs even when larger herbivores are excluded.

Four bush remnants within the Manawatu-Rangitikei region of New Zealand, two in the coastal sand country and two inland at Marton, were studied for the causes of seedling mortality over five seasons from August 1999 to December 2000.

One hundred and fifty seedlings were identified and numbered to species level and were placed in five treatments and controls at each site, except Legg Estate bush remnant where ninety seedlings were used in unbalanced numbers in each replicate

The data were analysed using logistic regression with scores for rabbit densities and deaths of seedlings per bush remnant within the treatments and controls.

The analysis suggests that there is a seasonal effect ($P<0.0001$) and a treatment /control effect ($P=0.0002$) on seedling survival with treatments at Legg Estate bush

remnant surviving consistently better over the five seasons.

At Himatangi Block Scientific Reserve seedlings in the treatment survived better than seedlings in the controls, except for winter 1999.

At Monkton's and Fulleton-Smith bush remnants, treatments survived better than in the controls.

Overall the treatment (protecting seedlings against rabbits by fencing) improves seedling survivability. This trial was conducted at a time of regionally low pest numbers because of the prior introduction of Rabbit Haemorrhagic Disease (RHD), and treatment results should be interpreted with this in mind.

Key Words: Rabbit, Treatment effect, Bush remnant, RHD, Exclosure, Seedling survival.

List of photographs

Unless otherwise stated photographs were taken by Mrs Cheryl Doyle

List of maps

List of diagrams

List of tables

List of graphs

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A SINCERE

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Table of contents

Chapter 2 Light levels and the irrigation experiment.

Chapter 3 Seed production and seed rain.

Chapter 4 Seedling Growth and survival.

Chapter 5 Conclusions and post script.

Appendices